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(54) Entrance, cross-referencing and branching systems for computer networks

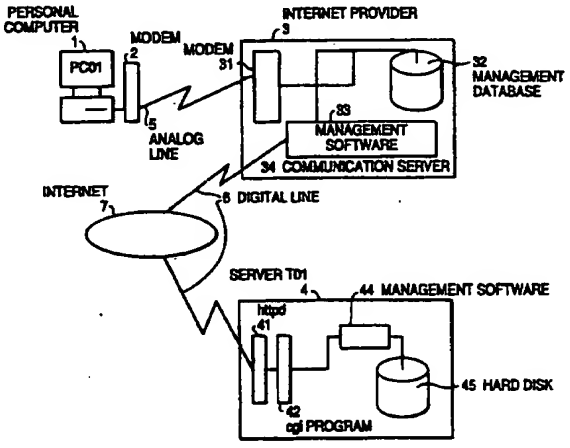
(57) The invention provides a computer network system comprising

a memory unit, storing entrance data, which data serves for defining or establishing a network link to a data source to be accessed by a network user,
an input acceptance unit, operable to accept, from a data requestor site, input of identification data of the data requestor site and of authorisation data authorising addition of entrance data to data from the data requestor site, and
an update unit, operable to update the data from the data requestor site identified by the identification data, to include the entrance data, when authorisation is received by the input acceptance unit.

The invention further provides a computer network system, comprising:

a memory unit operable to register identification data concerning data requestor sites, together with attribute data concerning the data requestor sites; and
a branching unit operable to branch, upon reception of a free branching instruction, to generation of desired data based on the identification data in said memory unit, routing information indicating routing to the system and the attribute data stored in said memory unit.

FIG. 1



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Description

The present invention relates to computer networks and in particular to entrance, cross-referencing and branching systems for computer networks.

According to the present invention there is provided a computer network system comprising

a memory unit, storing entrance data, which data serves for defining or establishing a network link to a data source to be accessed by a network user,
an input acceptance unit, operable to accept, from a data requestor site, input of identification data of the data requestor site and of authorisation data authorising addition of entrance data to data from the data requestor site, and
an update unit, operable to update the data from the data requestor site identified by the identification data, to include the entrance data, when authorisation is received by the input acceptance unit.

According to the present invention there is further provided a computer network system comprising

a memory unit, storing entrance data, which data serves for defining or establishing a network link to a data source to be accessed by a network user,
an input acceptance unit, operable to accept input of identification data of a data requestor site and of destination data of a person who can authorise update of data from the data requestor site, and
an update unit, operable to obtain data from the data requestor site identified by the identification data and to modify the data from the data requestor site to include the entrance data, and
a transmission unit operable to transmit modification data to update the data from the data requestor site identified by the identification data to obtain updated information with the entrance data added, when the person identified by the destination data has authorised the update.

It will be appreciated that the inventors have had the insight that in computer networks, particularly in large public or open networks such as the Internet, there is a need for systems which facilitate efficient dissemination and accessability of data across the network and which facilitate efficient network usage when access is desired, across the network, to a data source in the network. An embodiment of the present invention provides that entrance data, defining a link to or network address of the data source can be delivered across the network to a data requestor site included in data from the data requestor site that has been obtained across the network and modified or updated to incorporate the entrance data, so that the data at the data requestor site then indicates the availability of the data source and so that linking or access to the data source can be directly effected using the data at the data requestor site. For example, the data requestor site may be an Internet home page and data from the data requestor site may be display data for the home page on the Internet or World Wide Web. When this data is modified by the entrance data for the data source, the availability of the data source is indicated in the display of the home page. This facilitates the dissemination and accessibility of the data in the data source, because data requestor sites can receive the entrance data on demand, and because the availability of the data source is then also indicated by the data requestor sites. Moreover, the provision of linking to the data source from the data requestor sites facilitates efficient network usage.

An embodiment of the present invention can also provide for the storage, in a memory unit of the system, of registrations of the identification data, e.g. network addresses, of data requestor sites which have accepted updating to incorporate the entrance data. Thereby, the provider or offeror of the data source can track or monitor the data requestor sites to which the entrance data has been disseminated, and may be able, through control of the registrations, to more efficiently manage and control dissemination of the data in the data source.

Further, according to the present invention there is provided a computer network system, comprising:

a memory unit operable to register identification data concerning data requestor sites, together with attribute data concerning the data requestor sites; and
a branching unit operable to branch, upon reception of a free branching instruction, to generation of desired data based on the identification data in said memory unit, routing information indicating routing to the system and the attribute data stored in said memory unit.

Thus, the stored registration of a data requestor site may include attribute data, indicating a characteristic or concern of the site, for example that the site is concerned with data relating to a particular field, topic or interest. Then, for instance, when there is sent to the system from one data requestor site a free branching instruction (the routing information of that site, in the stored registration, indicating the site's stored attribute data), the system can branch or link to another site registered in the system and having the same or similar attribute data. Thus, a link can be made to another site concerned with the same topic or interest.

It will thus be understood that a system embodying the present invention can thereby provide for cross-referencing of sites, for example concerned with the same topic or interest, so that a user can more efficiently use the network to locate information of interest.

Thereby, when a data requestor site accepts entrance data for access to the data source of the sys-

tem, the requestor site itself can become readily available to other sites, through the data source, whereby data at the data requestor site is made more widely available and is efficiently accessible in a cross-referenced manner. Thus, requestor sites became available as data sources to others, via the data source of the system.

For example, in recent times, with the rapidly evolving complexity of the Internet, many enterprises, organizations and individual computer users are making available a large amount of data, for example carrying information or services, relating to many fields of endeavour such as particular technologies, sports, business, and leisure, on networks using their own home pages.

Enterprises and organizations are offering, for the purpose of information dissemination, business or sales promotion, data providing information for instance about self-manufactured products (e.g., contents of games, in the case of a game developing company) and/or access windows for downloading of self-developed software using their own home pages. Meanwhile, individual users and organizations are offering, using their own home pages, various services, such as information introducing the strategy for newly developed games, forecasting information of horse races or information about a particular hobby.

An ordinary network user having a particular interest or hobby, data relating to which is held in particular data sources, accessible via the network as home pages of persons or organizations, as explained above, in order to get the information about their own interest or hobby, will be interested in accessing home pages related to the interest or hobby.

Further, there is now a commercial potential for using these home pages as an "advertisement" medium because ordinary users are beginning to access home pages offering useful information about particular interests or hobbies.

Regarding "advertisements" on the Internet, it is more effective to place an advertisement, as in advertisements placed in more traditional media, in areas where there are likely to be seen and heard by people who are interested in the information or service appearing in that advertisement. More generally, it is desirable that data in a particular data source, relating to a particular field of interest, should be accessible from network sites (e.g. home pages) which are concerned with or share a similar field of interest. In this way, more efficient dissemination of the data, and more ready availability of the data, to those with an interest in this field can be provided.

Accordingly, for the reason explained above, for example in the case of placing an "advertisement" for a product or service on the Internet, a person in charge of the company or organisation which is planning to place the "advertisement" makes a survey of all home pages which provide centralized access to information about the product or service to be advertised. Thereafter, the person in charge makes a request by mail or telephone to the owner of such home page to place an "advertisement" there. In this case, there is no problem when the person in charge of the company is familiar with information about the product or service and he can identify the home page having the highest access rate related to the product or service of concern.

However, if the person in charge is not familiar with the relevant information, it is very difficult for him to identify a home page having a high access rate. In addition, even when he has some knowledge about the relevant information, it is difficult to identify desirable home pages, because retrieving software on the Internet often retrieves home pages that cannot be used. Moreover, it is essential to register the uniform resource locator (URL) of a home page along with the attribute of the home page for it to be possible for the home page to become retrievable by the retrieving software. Furthermore, personal home pages are often not registered.

Therefore, using the currently existing methods, the success of "advertisements" on the Internet has been a consequence mainly of the amount of work done by the administrator in charge of the company placing the "advertisement". Consequently, it has been difficult to increase the number of places "advertisements" are displayed.

An "advertisement" on the Internet is formed of digital information making it possible to distribute such information through the network. Therefore, it is also possible to increase such "advertisements" by storing the "advertisements" in a server on the Internet. Namely, if it is possible for an Internet user who has made access to a home page on a server to register an "advertisement" for display on the user's own home page, the workload of the person responsible for getting the "advertisements" displayed can be reduced.

Moreover, as explained previously, a user who has accessed a particular home page may be interested in an attribute of that home page. Therefore, if viewing of an "advertisement" on the Internet can be increased among those having a particular interest or hobby, the company can further reduce the work involved in Internet "advertising", resulting in more efficient "advertising". However, to increase distribution of "advertisements", it is necessary to give an incentive to users to register their home pages to encourage them to register an advertisement pointing to a company's home page.

On the other hand, presentation of the "advertisement" in a home page requires revision of the contents of the home page. Although a personal home page is hosted by a server of an Internet service provider, the Internet service provider cannot freely revise the contents of the home page. Therefore, it is essential to get approval of the owner of the home page, because such revision is allowed only by the owner of the home page, because such revision is allowed only by the owner of

the home page. Since revision of a personal home page will require access to the server of the Internet service provider, at least the communication ID and password for establishing communication with the Internet service provide are required.

A system embodying the present invention can be employed to provide an information offering system on a computer network which allows an information offeror to register and update a home page.

Further, a system embodying the present invention can be employed to provide an information offering system on a computer network for allowing a user to access a home page from an advertisement by branching or linking to the location of the home page.

Reference is made, by way of example, to the accompanying drawings, in which:-

Fig. 1 is a system configuration diagram of a first embodiment of the present invention.
Fig. 2 is a flowchart relating to the first embodiment.
Fig. 3 is a flowchart relating to the setting of entrance data or information for a home page.
Fig. 4 is a data management diagram of session IDs and routing information.
Fig. 5 shows a display relating to the setting of entrance information.
Fig. 6 is a data format diagram of the registered database for management of registered data requestor sites or home pages (Earliest).
Fig. 7A is a display of a home page on PC01 prior to updating to show entrance information.
Fig. 7B is HTML source that generates the display in Fig. 7A.
Fig. 7C is updated HTML source after the addition of the entrance data or information to the HTML source illustrated in Fig. 7B by the management software 44.
Fig. 8 is a display example on personal computer PC01 having received a JAVA applet.
Fig. 9A is a display of a home page before setting of entrance data or information.
Fig. 9B is a display of the home page after setting of entrance data or information.
Fig. 10 is a system configuration diagram of a second embodiment of the present invention.
Fig. 11 is a flowchart relating to a third embodiment of the present invention.
Fig. 12 is a data format diagram of a database for administering extracted URLs.
Fig. 13 is a data format diagram of a database for administering the entrance data or information.

Preferred embodiments of the present invention will be explained hereunder with reference to Figs. 1-13. Figs. 1-9 and 13 relate to a first embodiment of the present invention. Fig. 10 illustrates the second embodiment of the present invention. Figs. 11 and 12 illustrate a third embodiment of the present invention.

By way of example, and for ease of understanding, the present invention will be explained below by reference to a data network systems handling "advertising" data in the Internet. It will however be understood that the technical means involved in the present invention can be employed for many other purposes and that these means are not embodied in the content of the data or the significance or meaning attributed to the data by a user.

The first embodiment of the present invention will be explained with reference to Figs. 1-9 and 13. Fig. 1 shows a system configuration in relation to the first embodiment of the present invention. As illustrated in Fig. 1, a personal computer 1 (PC01) is connected by a modem 2 and an analog line 5, such as a telephone line, to a server 3 (IP01) of an Internet service provider. In Fig. 1, the modem 2 is illustrated in a housing separate from the housing of personal computer PC01, i.e., as an external modem, but the modem 2 may be in the same housing as personal computer 1 (PC01), i.e., the modem 2 may be an internal modem. Alternatively, the connection between personal computer 1 and the server 3 (IP01) may be by a digital line, such as an ISDN line and appropriate interfaces, such as terminal adapters. The server 3 (IP01) of the Internet service provider is connected to the server 4 (T01) for offering information or service (data source) via the digital lines 6 (e.g., ISDN line) and Internet 7.

The server 3 (IP01) is generally composed of a modem 31 for communication with the analog lines, a management database 32 for administrating personal home pages and member information, management software 33 for controlling or administrating accesses by members of the Internet service provider using information of the management database 32 and a communication server 34 for mediating accesses to the Internet from the members of the Internet service provider.

On the other hand, the server 4 (T01) is composed of an http demon (httpd) 41 and cgi program 42. The http demon administrates the server T01 by a routine which accepts an http request from a user and controls the server system indirectly based on the user request which should not be controlled indirectly by a user. Moreover, common gateway interface (cgi) program 42 is a program having a cgi for providing various services responding to the requests from users. In the following examples, methods involved in the present invention are performed with the aid or the management software 44 and the hard disk 45.

Operations of the present invention will be briefly explained conforming to the flowchart in Fig. 2. A particular example explained below is the case where an owner of personal computer PC01 sets the entrance information (entrance data) of a service Z offered from the server T01 (data source) to his own home page (data requestor site), i.e., display information under the control of the Internet service provider IP01. The following steps refer to Figure 2.

In step S01, the communication ID and password are transmitted to the server 3 (IP01) of the Internet service provider from personal computer 1 (PC01) to establish communication between the server 3 and personal computer 1.

In step S02, the home page (of the data source) in server 4 is accessed after searching various home pages via server 3 of the Internet service provider. At the time of access, personal computer 1 (PC01) transmits to the server 4 (T01) the variable HTTP_REFERER indicating through which server the access was made to server 4 (T01). For example, as shown in Figure 4, when personal computer 1 (PC01) has accessed server 4 (T01) from the home page designated by "http://www.beef.provider-a.or.jp/a01/pc01.htm", this URL is substituted into the variable HTTP_REFERER which is then transmitted to the server 4 (T01). In this example, the variable HTTP_REFERER indicates the home page of the owner of personal computer 1 (PC01).

In step S03, the management software 44 assigns a session ID for identifying communication to administrate this access of personal computer 1 (PC01). The browser of personal computer 1 (PC01) sends the session ID before the session ends. In the example shown in Fig. 4, "680075" is the session ID and it is administrated together with the variable HTTP_REFERER received in step S01. The communication of personal computer 1 (PC01) can be discriminated from communication having other session IDs by transmitting the relevant session ID to the server T01 during the session. For example, the management software 44 in the server T01 assigns the session ID for the session of personal computer 1 (PC01), and sends the session ID to personal computer 1 (PC01). So, when the browser of personal computer 1 (PC01) sends an order (e.g., branching to a page of Fig. 5), the browser sends the order with the session ID to the server T01.

In step S04, the management software 44 determines whether HTTP_REFERER is registered in the registered database (see Fig. 6). In other words, the management software 44 determines whether the URL of the home page on server T01 stored in the variable HTTP_REFERER exists in the registered database (Fig. 6). The information shown in Fig. 6 is administrated in the hard disk 45. For instance, in Fig. 6, the URL corresponding to the management number 0001 is "http://www.provider-a.or.jp/a01/pc10.htm". The contents of the home page relates to "POPS". The record with management number 00001 also has an e-mail address of "pc10@tomato.provider-a.or.jp" for the owner of the home page. The owner of a home page is a person who can authorize revision of the contents of the home page. Contents of the registered database of Fig. 6 are based on the contents of input at the preset display of the entrance information to the home page shown in Fig. 5 (explained later).

In step S05, when access is made from a home page that is already registered, branching is made to contents corresponding to access from a home page registered in the database. The contents corresponding to registration are, for example, premium contents for the person who has accessed from a home page which is already registered.

In step S06, when access is made from a home page not yet registered, the method branches to contents corresponding to access from an unregistered home page. Below it will be assumed that the variable HTTP_REFERER corresponding to the session ID "680075" of PC01 is explained under the assumption that it is not yet registered in the registered database illustrated in Fig. 6.

In step S07, the method proceeds to the display for recommending registration. As illustrated in Fig. 5, the display for registering the URL of the home page sets the entrance information to a service Z, its attribute (for example, a kind of service such as baseball, soccer, etc.) and an e-mail address or other destination information of the home page owner (namely, a person who can revise the source of the home page). The registered information is assigned a unique management number and is then stored in the registered database (Fig. 6) on the hard disk 45.

In other words, in the display of Fig. 5, the owner of personal computer PC01 registers the required items for registering the entrance information of a service Z to his own home page. In Figure 5, the URL "http://www.beef.provider-a.or.jp/a01/pc01.thm" of the owner of PC01, the attribute "jazz", and the e-mail address of the owner of the home page, "pc01@tomato.provider-a.or.jp" and the other items are written. Thereafter, the "Submit" button is clicked to transmit the contents to the server T01.

In step S08, the management software 44 acquires the relevant source in HTML format from an area within the server (IP01) designated by the URL via the digital line 6 and Internet 7 and adds the entrance information of a service Z to the source acquired (corresponding to Fig. 3 and Figs. 7A-7C, explained later). Thereby, registration of the entrance information by a third party eases the work load of the person in charge of the company offering service Z, i.e., offered information about a service or product, where the entrance information provides a link to the offered information.

Next, modification of a home page to add entrance information to the service Z on the server IP01 will be explained with reference to Fig. 3 (corresponding to step S08 of Fig. 2).

In step S081, the management software 44 acquires the HTML source in the management database 32 of the Internet service provider IP01 via the digital lines 6 and Internet 7, based on the URL "http://www.beef.provider-1.or.jp/a01/pc01.htm" registered in step S07 of Fig. 2. An example of the HTML source acquired corresponds to the HTML source in Fig. 7B. The HTML source does not yet have the

entrance information to the service Z. Fig. 7A is a display of the home page produced by an Internet browser using the HTML source before update illustrated in Fig. 7B.

In step S082, the management software 44 adds entrance information for the service Z to the HTML source acquired from server 3. Figs. 7A-7C indicate how the management software 44 adds the entrance information of service Z to the HTML source. The management software 44 having acquired the relevant HTML source retrieves the entrance information having the same service type as that input in step S07 from the entrance information database (Fig. 13) in the hard disk 45. The entrance information is added to the HTML source at a position that does not obliterate any existing contents of the display generated by the HTML source. This is easily accomplished since there is no limit to the length of the display generated by the HTML source and the area of the display containing visible images can be determined by the management software 44. Alternatively, the owner of the home page generated by the HTML source may designate an area for advertisements to the displayed.

Fig. 13 shows the structure of the entrance information database for administrating the entrance information in the hard disk 45. The entrance information database as shown in Fig. 13 stores the name of a GIF file (image file) playing the role of a button for the entrance information, the URL of the branching destination when the button is clicked and a type of service.

In this example, since the service type "jazz" is input in step S07, the management software 44 reads the record for that type of service from the entrance information database (Fig. 13), including that the GIF file is "entrance.gif". The management software 44 updates the HTML source acquired in step S081 as shown in Fig. 7C on the basis of the record read from the entrance information database.

Namely, the management software 44 adds the entrance information to the HTML source to provide a link to the URL of the record read from the entrance information database, together with a tag (corresponding to ⟨right⟩ in the example of Fig. 7C) indicating where to insert the entrance information. In the example of Fig. 7C, the entrance information is set at the right end before tag (⟨/HTML⟩) of the source acquired. The HTML statements added by the server T01 means that it jumps to the URL following the "a ref =", when the image file designated by the URL following "img src =" is clicked. When the entrance information is added at the left side, the tag ⟨left⟩ is added to the HTML source, and when added at the center, the tag ⟨center⟩ is added.

In step S083, the management software 44 adds the acknowledge button to the updated HTML format source (in this example, corresponding to the source after update in Fig. 7C), and transmits it to the e-mail address with a JAVA applet (trademark of Sun Microsystems, U.S.). The JAVA applet is a program which transmits the advertisement information added to the HTML format source using the Internet file transfer protocol (ftp) to the URL acquired in step S07 of Fig. 2 (display of Fig. 5), when the acknowledge button is clicked.

In this example, since only one corresponding entrance information is assumed in step S082, only one acknowledge button is given. However, in general, two or more corresponding items of entrance information may exist in step S082. Therefore, on the occasion of setting several items of entrance information, an acknowledge button may be provided for each entrance information of a simultaneous acknowledge button to set all entrance information may be provided.

In step S085 of Fig. 3, the JAVA applet requests input of the communication ID and password for making access to the Internet service provider IP01. Input of the communication ID is not always requested when HTTP_REFERER matches the URL to be updated as in the case of the first embodiment. In this case the communication between personal computer PC01 and the Internet service provider IP01 is already established (S01 of Fig. 2) and the communication ID and password for the service provider are already input. Input of the communication ID, etc. is required, as in the case of the second embodiment explained later, when HTTP_REFERER and the URL to be updated belong to different servers.

When the acknowledge button is not depressed at step S084, the JAVA applet terminates the process. Therefore, the HTML source updated in the management software 44 is not reflected on the management database 32.

In step S085, the JAVA applet described above adds, when the "Submit" button in the dialog box of Fig. 8 is clicked, the communication ID and password input in the same dialog box to the updated HTML source.

In step S086, the JAVA applet transmits the HTML source with advertisement information added, by ftp to the URL acquired in step S07 of Fig. 2 (display of Fig. 5) with the communication ID and the password.

In step S087, the management software 33 in server 3, having received the transmission information from personal computer 1, confirms the right to revise the home page by checking the communication ID and password and thereafter updates the HTML source by overwriting the HTML statements to add the entrance information for the service Z.

Figs. 9A and 9B show the home page of the owner of PC01 as displayed by an Internet browser before (Fig. 9A) and after (Fig. 9B) the setting of the entrance information to the service Z. In Figs. 9A and 9B, the difference between the home page before and after the setting of the entrance information is the addition of the image file indicating entrance to the service Z located at the lower right of the home page illustrated in Fig. 9B. This difference corresponds to the HTML statements added by the server T01 in Fig. 7C. The entrance button to the service Z in Fig. 9B corresponds to the image

"cgi-bin/entrance.gif" of Fig. 7C.

Here, the routing through its own home page has been explained above, but routing through the home page of another user is also possible. In this case, it is necessary to previously obtain the destination of the home page owner (e-mail address) from the information about the relevant home page. In the display shown in Fig. 5, the URL of the home page of a user other than the owner and the e-mail address of the owner of the home page are obtained, so that a user wishing to revise another's home page can get permission from the other user.

Fig. 10 shows a system configuration in relation to the second embodiment of the present invention. The elements of Fig. 10 having the same reference numerals as Fig. 1 are identical to the elements of Fig. 1. In Fig. 10, the owner of personal computer PC01 has contracted with a plurality of Internet service providers (e.g., IP01, IP02) and the owner of personal computer PC01 makes access to the server T01 via the Internet service provider IP01 to revise the home page HP02 in the management database 32 of the Internet service provider IP02. Namely, in Fig. 10, HTTP_REFERER is different from the URL of the home page which is the object of update.

In Fig. 10, the owner of personal computer PC01 can receive the service Z offered by the server T01 having installed the software in relation to the present invention via the owner's home page HP02 or the home page of another person under the control of the Internet service provider IP02. The entrance information to the service Z is set to the home page HP01 of the owner of PC01 under the control of the Internet service provider IP01.

This case is basically the same as explained above in regard to the first embodiment of the present invention. Therefore, the session ID and HTTP_REFERER (routing information) are administrated in the hard disk 45 in the server T01 as shown in Fig. 4 and the registered URL, etc. is also administrated as shown in Fig. 6.

However, this case is different from the first embodiment in that the URL of the home page HP02 under the control of the Internet service provider IP02 is stored as the routing information in HTTP_REFERER. Furthermore, the URL of home page HP01, input at the setting display of Fig. 5 as the identification information for the display information (home page HP01) to which the entrance information will be added, is under control of the Internet service provider IP01.

Another difference is that the second embodiment requires input of a communication ID and password when the source of the updated home page HP01 is received together with the JAVA applet (Fig. 8). In this case, since personal computer PC01 is accessing the server T01 via the Internet service provider IP02, communication with the Internet service provider IP02 has already been established. However, the source of the updated home page HP01 is under the control of Internet service provider IP01 to which communication is not yet established. Therefore, in this case, as shown in Fig. 8, input of the communication ID and password required for accessing the Internet service provider IP01 must be obtained. In this regard, the second embodiment is different from the first embodiment. In the first embodiment, it is not necessary to input a communication ID because communication with service provider IP01 has already been established. By contrast, in the second embodiment, it is necessary to input a communication ID because communication with Internet service provider IP01 has not been established.

Otherwise, the second embodiment is similar to the first embodiment already explained. In Fig. 10, the home page HP02 used for routing is designated as a personal home page under the control of the Internet service provider for the purpose of this explanation, but it is of course possible that the routing home page may be a home page offered by a company or organization on the server IP02. In addition, in Fig. 10, the home page HP01 in which the entrance information is set has been described as a personal home page under the control of the Internet service provider for the convenience of explanation, but it is also of course possible that a home page offered by a company or organization having a server could be used.

Fig. 11 shows a flowchart for explaining operations of the third embodiment of the present invention. The system configuration used in the third embodiment may be any system configuration, including as shown in Fig. 1 or Fig. 10. However, operations of the third embodiment will be explained using the reference numerals appearing in the system configuration of Fig. 1 and contents of Figs. 2-9.

In the third embodiment of the present invention, persons viewing the home page displaying the entrance information for the service (data source) can easily link to multiple URLs with the same attribute as that of the routing information, when the management software 44 has received an instruction to provide such links during access to the home page under the control of the server T01. In this embodiment, since the links are easily accessed, this will encourage more users to access home pages on related subject matter. Meanwhile, it is preferable for those who have issued a request to link to another home page, i.e., a free branching instruction, because the link or branching is made, based on the routing information, to a home page with information in which the person who issued the command is interested. Therefore, the person who issued the command may find his or her expectation fulfilled and something new may be found.

In step ST01 the home page (of the data source) under the control of the server T01 is provided with a "retry button" at a desired position to issue a free branching instruction to branch to randomly selected related information. When the owner of personal computer PC01 transmits an instruction to the server T01 by

clicking the "retry button" on the display, the management software 44 recognizes issuance of the free branching instruction.

In step ST02, the management software 44 obtains the routing information of the relevant session from the management data shown in Fig. 4 on the basis of the session ID given to this session. For example, when the session ID is "680075", the management software 44 obtains the routing information "http://www.beef.provider-a.or.jp/a01/pc01.htm".

In step ST03, the management software 44 judges whether the routing information obtained from the registered database (Fig. 6) matches the routing information in step ST02. When the routing information obtained in step ST02 does not match the routing information from the registered database, in step ST04 the management software 44 branches to a display recommending registration.

When it is determined in step ST03 that the routing information obtained in step ST02 matches the routing information in the registered database, in step ST05 the management software 44 extracts routing information from the registered database having the same attribute as the routing information (URL) previously obtained from the registered database. The management software 44 assigns consecutive numbers for the routing information (URLs) extracted from the registered database and uses a work database on the hard disk 45 to maintain pointers to entries in the registered database that have the same attribute.

Fig. 12 shows an example of management of the work database created in response to clicking on the "retry button" when the attribute is "jazz". The work database on the left side of Fig. 12 is created for each session (in this case session ID "670075") in which the retry button is clicked. Each entry in the work database corresponds to an entry in the registered database with an attribute that matches the attribute in the registered database record containing the URL in HTTP_REFERER. The work database is composed of consecutive numbers used for management and pointers to the records of the registered database (Fig. 6) having matching attributes.

In step ST06 the management software 44 generates a random number within the range of consecutive numbers of the work database. In the example of Fig. 12, the random number is generated within the range from 1 to 531, because the number of records in the work database, i.e., the number of records in the registered database with the attribute "jazz" (excluding the record with URL in HTTP_REFERER, "http://www.beef.provider-a.or.jp/a01/pc01.htm"), is 531.

In step ST07 the management software 44 uses the random number generated in step ST06 to identify a URL pointed to by the work database record having a consecutive number corresponding to the random number. The management software 44 also transmits HTML source indicating a jump to the URL associated with the session ID ("680075"). Thereafter, the management software 44 deletes the management data (Fig. 4) for the session ID ("680075"). The Internet browser running on personal computer 1 receives and executes the HTML source and jumps to the designated URL.

In the first embodiment, an "advertisement" may be set in the home page on the server of a company via the company LAN. Moreover, in the second embodiment, it is also possible that a user sets the entrance information to his own home page under the control of an Internet service provider via the company LAN.

From the above explanation it will be understood that the present invention is concerned with computer network systems. However, some forms of the present invention may also be embodied, at least in a precursor form, as instructions on a memory medium before it is installed on a system. In this case, the memory medium includes a unit corresponding to the management software 44 explained above. However, when the memory medium is installed on the system, the system is equivalent to that explained above. Therefore the same explanation is not repeated here.

As will be apparent from above disclosure, the present invention provides the following benefits.

First, since the entrance information can be registered by the third party having the home page, the burden on the service offeror will be eased because the work is shared for expanding the entrance information.

Second, since branching to the home page can be made easily, references thereto are likely to increase and consequently the access rate can be improved. Accordingly, "advertisements" on the Internet can be increased by giving incentive for opening of the home page.

An embodiment of the present invention can provide an information offering system for providing offered information on a computer network, comprising:

a memory unit to store entrance information about entrance to the offered information;
an input accepting unit to accept input of identification information for display information and permission to add the entrance information to the display information by a provider of the display information; and
an updating unit to update the display information identified by the identification information to include the entrance information when permission is received by said input accepting unit.

An embodiment of the present invention can provide an information offering system for providing offered information on a computer network, comprising:

a memory unit to store entrance information about entrance to the offered information;
an input accepting unit to accept input of identifica-

tion information for display information and destination information of a person who can authorize update of the display information by a provider of the display information;

an update unit to obtain the display information identified by the identification information and to modify the display information by addition of the entrance information; and

a transmitting unit to transmit modification information to update the display information identified by the identification information to obtain updated information with the entrance information added, when the person identified by the destination information has authorized the update.

An embodiment of the present invention can provide such an information offering system wherein the display information identified by the identification information is provided by a server of an Internet provider.

An embodiment of the present invention can also provide such an information offering system wherein the destination information is a destination of electronic mail.

An embodiment of the present invention can provide such an information offering system wherein the transmitting unit transmits to the destination information of electronic mail, the updated information, including the entrance information, and acknowledge information, by means of a JAVA applet.

An embodiment of the present invention can provide such an information offering system wherein the identification information of the display information identifies a first server of a first information provider; and

wherein the identification information is received from a user coupled to said input accepting unit via a second server of a second information provider.

An embodiment of the present invention can also provide an information offering system wherein said transmitting unit uses the destination information to transmit to the person who can authorize update of the display information, a request to input an identifier and a password for access to a server identified by the identification information.

An embodiment of the present invention can also provide an information offering system for providing offered information on a computer network, comprising:

a memory unit to register identification information about display information together with attributes of the display information; and

a branching unit to branch, upon reception of a free branching instruction, to generation of desired information based on the identification information in said memory unit, routing information indicating routing to said information offering system and the attributes stored in said memory unit.

An embodiment of the present invention can provide such an information offering system wherein the display information identified by the identification information stored in said memory unit includes entrance information indicating where said branching unit branches.

An embodiment of the present invention can provide such an information offering system

wherein the identification information stored in said memory unit identifies the display information having entrance information added thereto, and

wherein said branching unit, upon reception of a free branching instruction when the routing information matches an item of the identification information, branches based on an item of the identification information for first display information having a first attribute matching a second attribute of second display information corresponding to the routing information.

In accordance with another aspect of the invention there can be provided at least one computer program, embodied on a computer-readable medium, to provide information on a computer network, comprising:

an input accepting segment to accept input of identification information for display information when addition of entrance information to the display information is requested; and

an update segment for updating the display information identified by the identification information to add the entrance information.

In accordance with a further aspect of the invention there can be provided at least one computer program, embodied on a computer-readable medium, to provide information offering service on a computer network, comprising:

a registering segment to register identification information for display information containing entrance information corresponding to offered information of the information offering service, and attributes of the display information;

an extracting segment to extract, upon reception of a free branching instruction during access to the information offering service, extracted items of the identification information, the attribute of each extracted item matching a display attribute corresponding to routing information indication routing to the information offering service; and

a branching segment for randomly branching to one of the extracted items of the identification information.

In accordance with another aspect of the present invention there can be provided a method of registering with an information provider, offered information related to a product or service, comprising:

registering with a first information provider identifi-

cation information of display information, an attribute of the display information, and destination information for obtaining authorization for a second information provider to modify the display information; and

updating the display information by the second information provider to include entrance information to the offered information after the authorization has been obtained based on the destination information.

According to an embodiment of the invention there can be provided such a method wherein the identification information includes a uniform resource locator and the destination information includes an e-mail address for a person authorized to permit modification of the display information.

An embodiment of the present invention can further provide an information offering system for providing offered information about a service or a product on a computer network, comprising:

a session unit to accept routing information on how said information offering system was accessed and to initiate a session to add entrance information for the offered information to display information;
a registration unit to store identification information of the display information, an attribute of the display information, and destination information for obtaining authorization to modify the display information; and
an updating unit to update the display information after receiving the authorization using the destination information.

In an example of an embodiment of the invention an information offering system stores information on products and services along with attributes describing these products and services. Individual users are allowed to automatically register information on their products and services with the information offering system. By this method, the information offering system advertises products and services. Because the registration is done automatically by each offeror of a service or product, the efforts of a central administrator entering this information becomes unnecessary, thus making it possible to advertise more products and services efficiently.

Claims

1. A computer network system comprising

a memory unit, storing entrance data, which data serves for defining or establishing a network link to a data source to be accessed by a network user,
an input acceptance unit, operable to accept, from a data requestor site, input of identification data of the data requestor site and of authorisation data authorising addition of entrance data to data from the data requestor site, and
an update unit, operable to update the data from the data requestor site identified by the identification data, to include the entrance data, when authorisation is received by the input acceptance unit.

2. A computer network system comprising

a memory unit, storing entrance data, which data serves for defining or establishing a network link to a data source to be accessed by a network user,
an input acceptance unit, operable to accept input of identification data of a data requestor site and of destination data of a person who can authorise update of data from the data requestor site, and
an update unit, operable to obtain data from the data requestor site identified by the identification data and to modify the data from the data requestor site to include the entrance data, and a transmission unit operable to transmit modification data to update the data from the data requestor site identified by the identification data to obtain updated information with the entrance data added, when the person identified by the destination data has authorised the update.

3. A system as claimed in claim 1 or 2, wherein the data from the data requestor site identified by the identification data is provided by a server of an Internet provider.

4. A system as claimed in claim 2, or claim 3 read as appended to claim 2, wherein the destination information is a destination of electronic mail.

5. A system as claimed in claim 2 or 4, or claim 3 read as appended to claim 2, wherein the transmission unit transmits to the destination of electronic mail, the updated information, including the entrance data, and acknowledgement information, by means of a JAVA applet.

6. A system as claimed in claim 2, 4 or 5, or claim 3 read as appended to claim 2,

wherein the identification data identifies a first server of a first information provider; and

wherein the identification data is received from a user coupled to said input acceptance unit via a second server of a second information provider.

7. A system as claimed in claim 2, 4, 5 or 6, or claim 3 read as appended to claim 2, wherein said transmission unit uses the destination data to transmit, to the person who can authorise update of data from the data requestor site, a request to input an identifier and a password for access to a server identified by the identification data.

8. A computer network system, comprising:

a memory unit operable to register identification data concerning data requestor sites, together with attribute data concerning the data requestor sites; and

a branching unit operable to branch, upon reception of a free branching instruction, to generation of desired data based on the identification data in said memory unit, routing information indicating routing to the system and the attribute data stored in said memory unit.

9. A system as claimed in claim 8, wherein the data requestor site identified by the identification data stored in said memory unit includes entrance data indicating where said branching unit branches.

10. A system as claimed in claim 9,

wherein the identification data stored in said memory unit identifies the data requestor site having entrance data added thereto, and

wherein said branching unit, upon reception of a free branching instruction when the routing information matches an item of the identification data, branches based on an item of the identification data for a first data requestor site having a first attribute matching a second attribute of second data requestor site corresponding to the routing information.

11. At least one computer program, embodied on a computer-readable medium, for a computer network system, comprising:

an input accepting segment to accept input of identification data for a data requestor site when addition of entrance data to data from the data requestor site is requested; and

an update segment for updating the data from the data requestor site identified by the identification data to add the entrance data.

12. At least one computer program, embodied on a computer-readable medium, for a computer network system, comprising:

a registering segment to register identification data for a data requestor site containing entrance data corresponding to a data source, and attribute data concerning the data requestor site;

an extracting segment to extract, upon reception of a free branching instruction during access to the data source, extracted items of the identification data, attribute data of each extracted item matching an attribute of the data requestor site corresponding to routing information indicating routing to the data source; and

a branching segment for randomly branching to one of the extracted items of the identification data.

13. A method of registering with an information provider, offered information or data, for example related to a product or service, comprising:

registering, with a first information provider data source, identification data of a data requestor site, attribute data of the data requestor site and destination data for obtaining authorization for a second information provider to modify the data from the data requestor site; and

updating data from the data requestor site, by the second information provider, to include entrance data to the data source after the authorization has been obtained based on the destination data.

14. A method as claimed in claim 13, wherein the identification data includes a uniform resource locator and the destination data includes an e-mail address for a person authorized to permit modification of the data from the data requestor site.

15. A computer network system, comprising

a session unit operable to accept routing data on how said system was accessed and to initiate a session to add entrance information for a data source to data from a data requestor site

a registration unit operable to store identification data of the data requestor site, an attribute of the data requestor site and destination data for obtaining authorization to modify the data from the data requestor site; and

an updating unit to update the data from the data requestor site after receiving the authorization using the destination data.

16. A system, a method or a computer program, as the case may be, as claimed in any preceding claim, wherein the data requestor site is a home page and the data from the data requestor site is display data for the home page.

FIG. 1

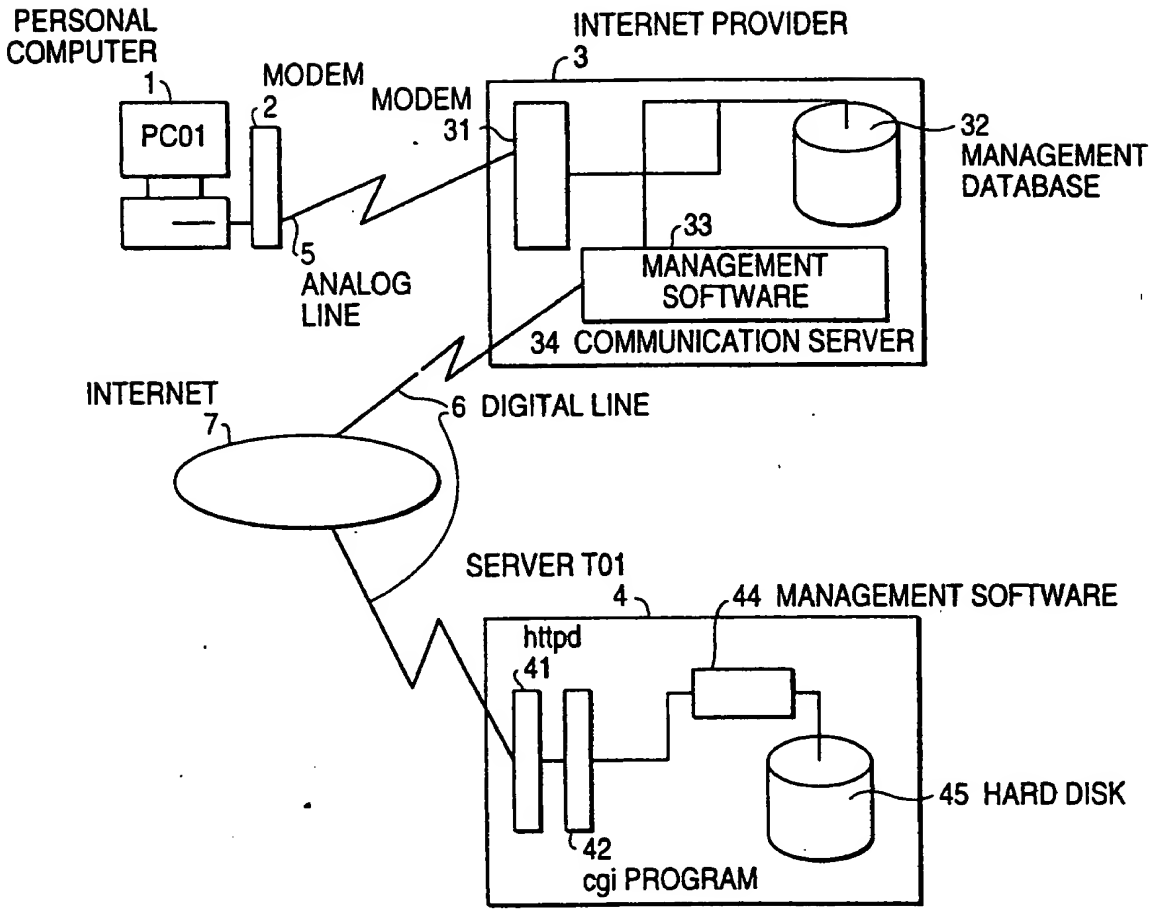

PERSONAL COMPUTER
1
PC01
MODEM
2
5
ANALOG LINE
MODEM
31
INTERNET PROVIDER
3
32
MANAGEMENT DATABASE
33
MANAGEMENT SOFTWARE
34 COMMUNICATION SERVER
INTERNET
7
6 DIGITAL LINE
SERVER T01
4
44 MANAGEMENT SOFTWARE
httpd
41
42
cgi PROGRAM
45 HARD DISK

FIG. 2

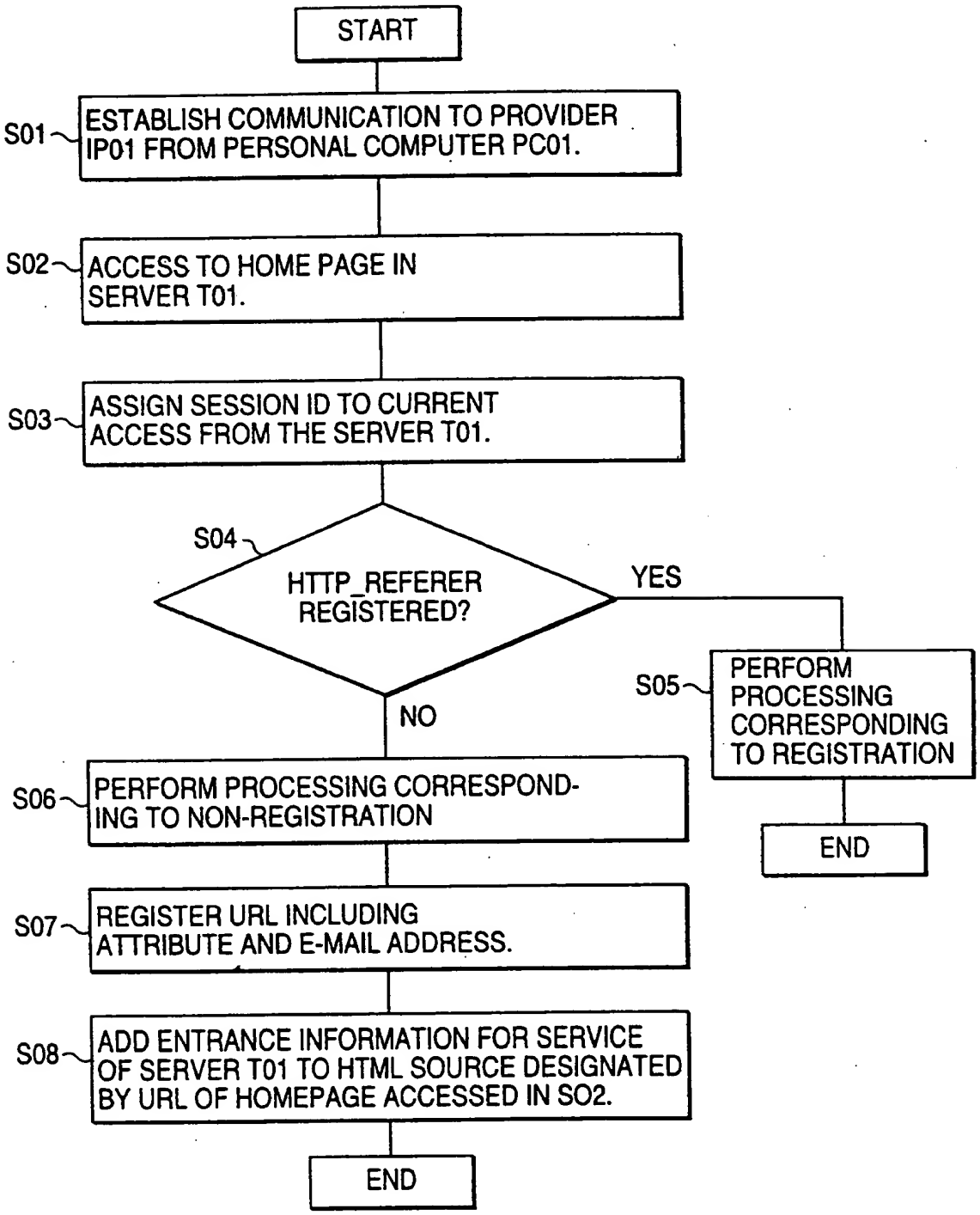

START
S01
ESTABLISH COMMUNICATION TO PROVIDER IP01 FROM PERSONAL COMPUTER PC01.
S02
ACCESS TO HOME PAGE IN SERVER T01.
S03
ASSIGN SESSION ID TO CURRENT ACCESS FROM THE SERVER T01.
S04
HTTP_REFERER REGISTERED?
YES
S05
PERFORM PROCESSING CORRESPONDING TO REGISTRATION
END
NO
S06
PERFORM PROCESSING CORRESPOND-ING TO NON-REGISTRATION
S07
REGISTER URL INCLUDING ATTRIBUTE AND E-MAIL ADDRESS.
S08
ADD ENTRANCE INFORMATION FOR SERVICE OF SERVER T01 TO HTML SOURCE DESIGNATED BY URL OF HOMEPAGE ACCESSED IN SO2.
END

FIG. 3

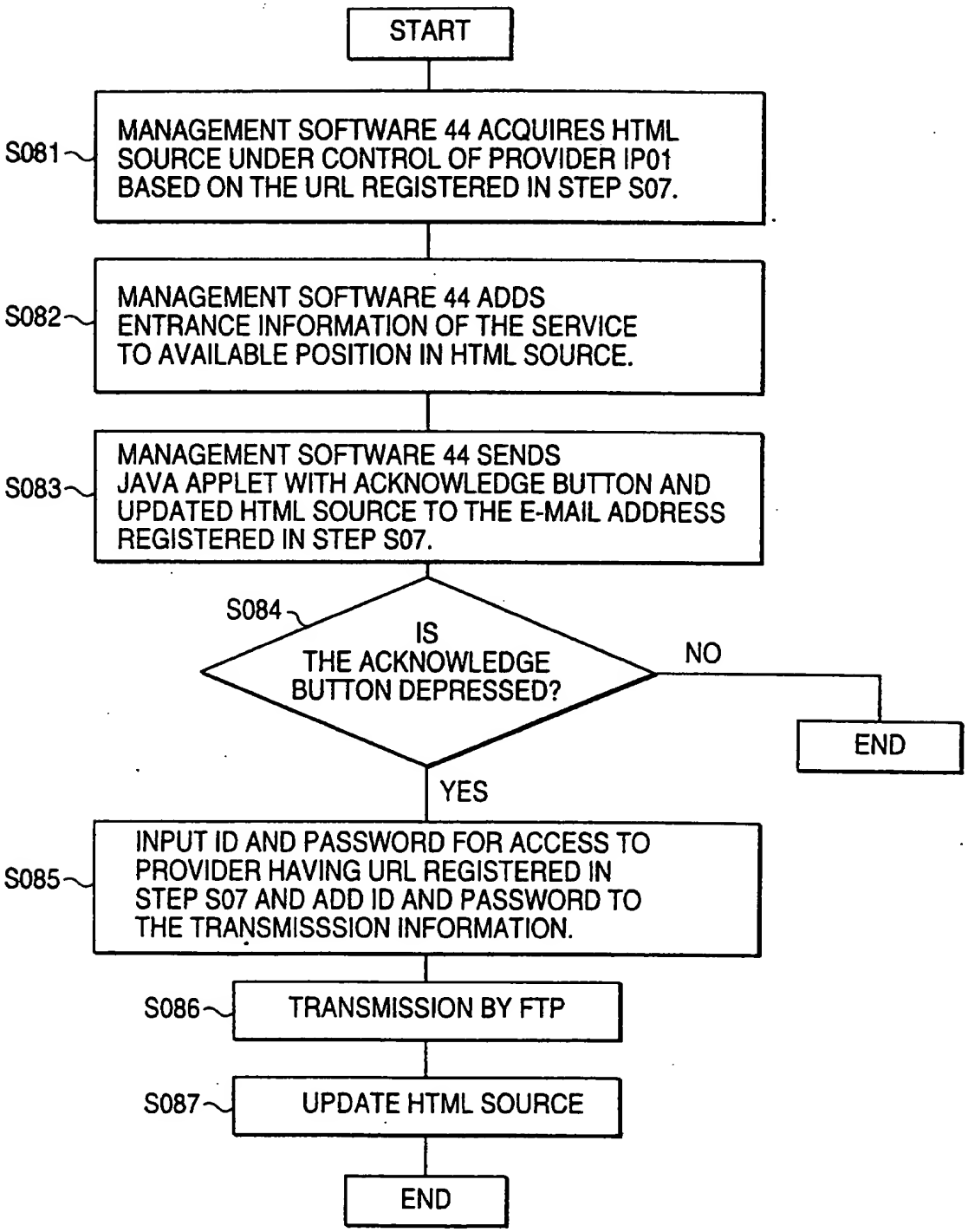

START
S081
MANAGEMENT SOFTWARE 44 ACQUIRES HTML SOURCE UNDER CONTROL OF PROVIDER IP01 BASED ON THE URL REGISTERED IN STEP S07.
S082
MANAGEMENT SOFTWARE 44 ADDS ENTRANCE INFORMATION OF THE SERVICE TO AVAILABLE POSITION IN HTML SOURCE.
S083
MANAGEMENT SOFTWARE 44 SENDS JAVA APPLET WITH ACKNOWLEDGE BUTTON AND UPDATED HTML SOURCE TO THE E-MAIL ADDRESS REGISTERED IN STEP S07.
S084
IS THE ACKNOWLEDGE BUTTON DEPRESSED?
NO
END
YES
S085
INPUT ID AND PASSWORD FOR ACCESS TO PROVIDER HAVING URL REGISTERED IN STEP S07 AND ADD ID AND PASSWORD TO THE TRANSMISSSION INFORMATION.
S086
TRANSMISSION BY FTP
S087
UPDATE HTML SOURCE
END

FIG. 4

SESSION ID	HTTP_REFERER
679002	http://www.tomato.company-a.co.jp/abc/eggs.htm
679051	http://www.bacon.company-b.co.jp/cde/lettuce.htm
680075	http://www.beef.provider-a.or.jp/a01/pc01.htm
680105	http://www.chicken.provider-b.or.jp/b01/pc15.htm
690013	http://www.pork.provider-c.org/c01/pc05.htm
. . . .	. . . . .

FIG. 5

SETTING OF ENTRANCE INFORMATION TO HOME PAGE

URL OF HOME PAGE: www.beef.provider-a.or.jp/a01/pc01.htm
KIND OF HOME PAGE: jazz

FIRST NAME: FUJI
SECOND NAME: TARO

E-MAIL: pc01@tomato.provider-a.or.jp

SUBMIT

FIG. 6

MANAGEMENT NO.	REGISTERED URL	ATTRIBUTE	E-MAIL
0001	http://www.provider-a.or.jp/ a01/pc10.htm	POPS	pc10@tomato. provider-a.or.jp
0002	http://www.provider-c.org/ c01/pc45.htm	BASEBALL	pc45@pork. provider-c.org
0003	http://www.provider-z.or.jp/ z01/pc09.htm	SOCCER	pc09@fish. provider-z.or.jp
0004	http://www.provider-z.or.jp/ z01/pc07.htm	SUMO	pc07@fish. provider-z.or.jp
0005	http://www.company-A.co.jp/ AA01/aa01.htm	BUSINESS	master@hq. company-A.co.jp
. . . .	. . . . .	. .	. . . . .

FIG. 8

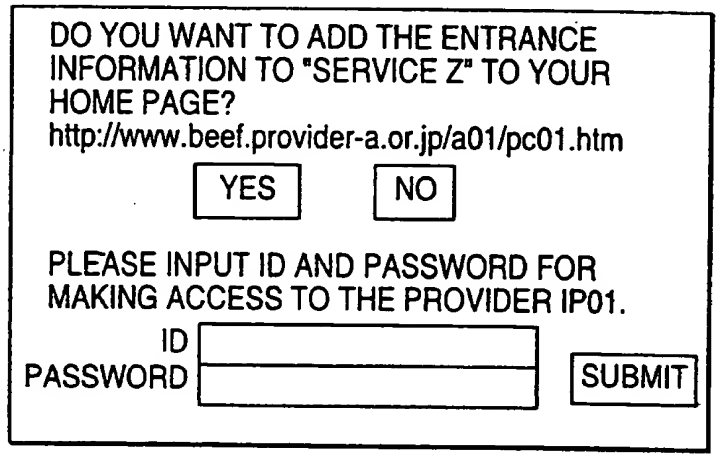


FIG. 7A

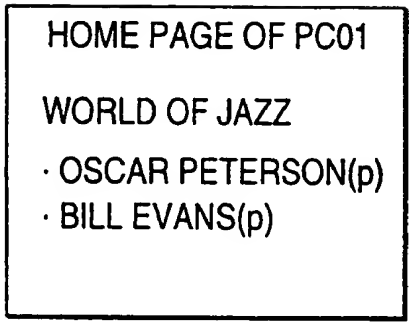
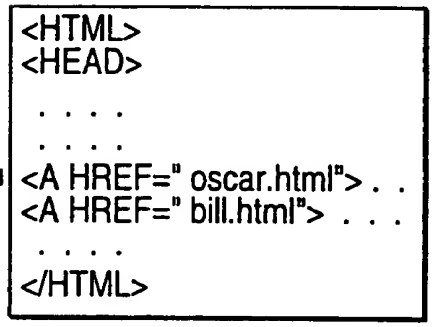


FIG. 7B

(URL=http://www.beef.provider-a
/a01.pc01.htm)



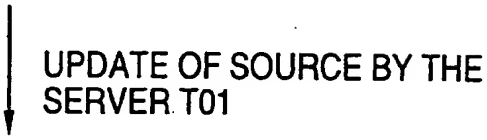


FIG. 7C

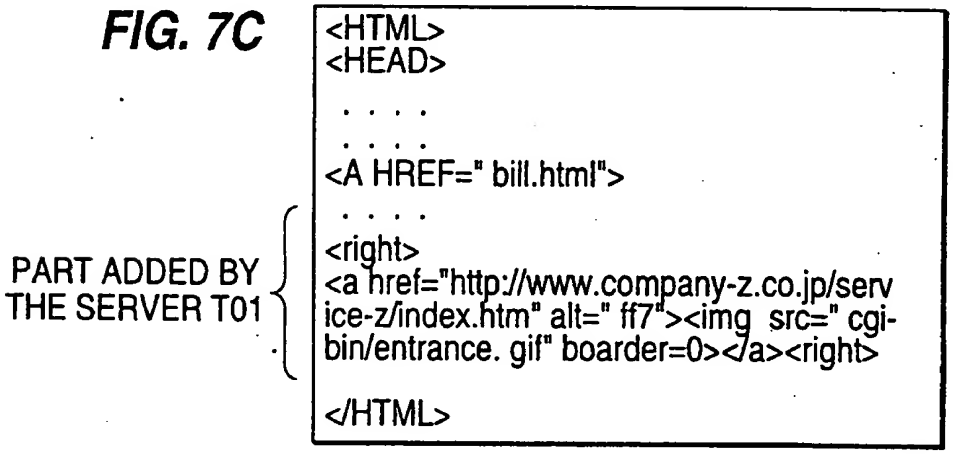


FIG. 9A

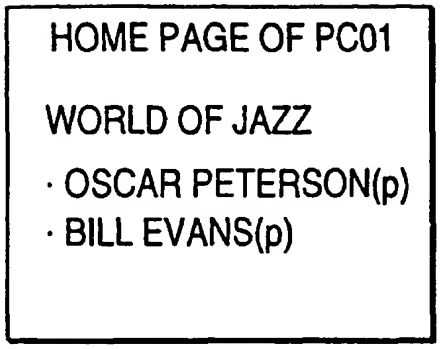


FIG. 9B

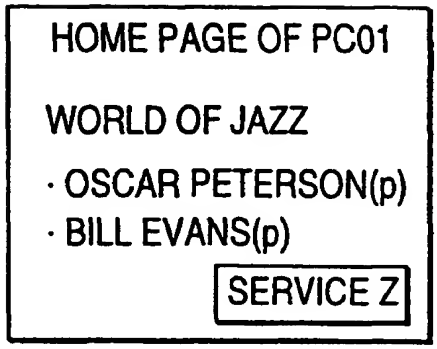


FIG. 13

GIF FILE	URL AS BRANCHING DESTINATION	KIND OF SERVICE
entrance.gif	http://www.company-z.co.jp/ service-z/index.htm	JAZZ
img01.gif	http://www.company-x.com/ game/index.htm	GAME
. . . .	. . . . .	. . . .

FIG. 10

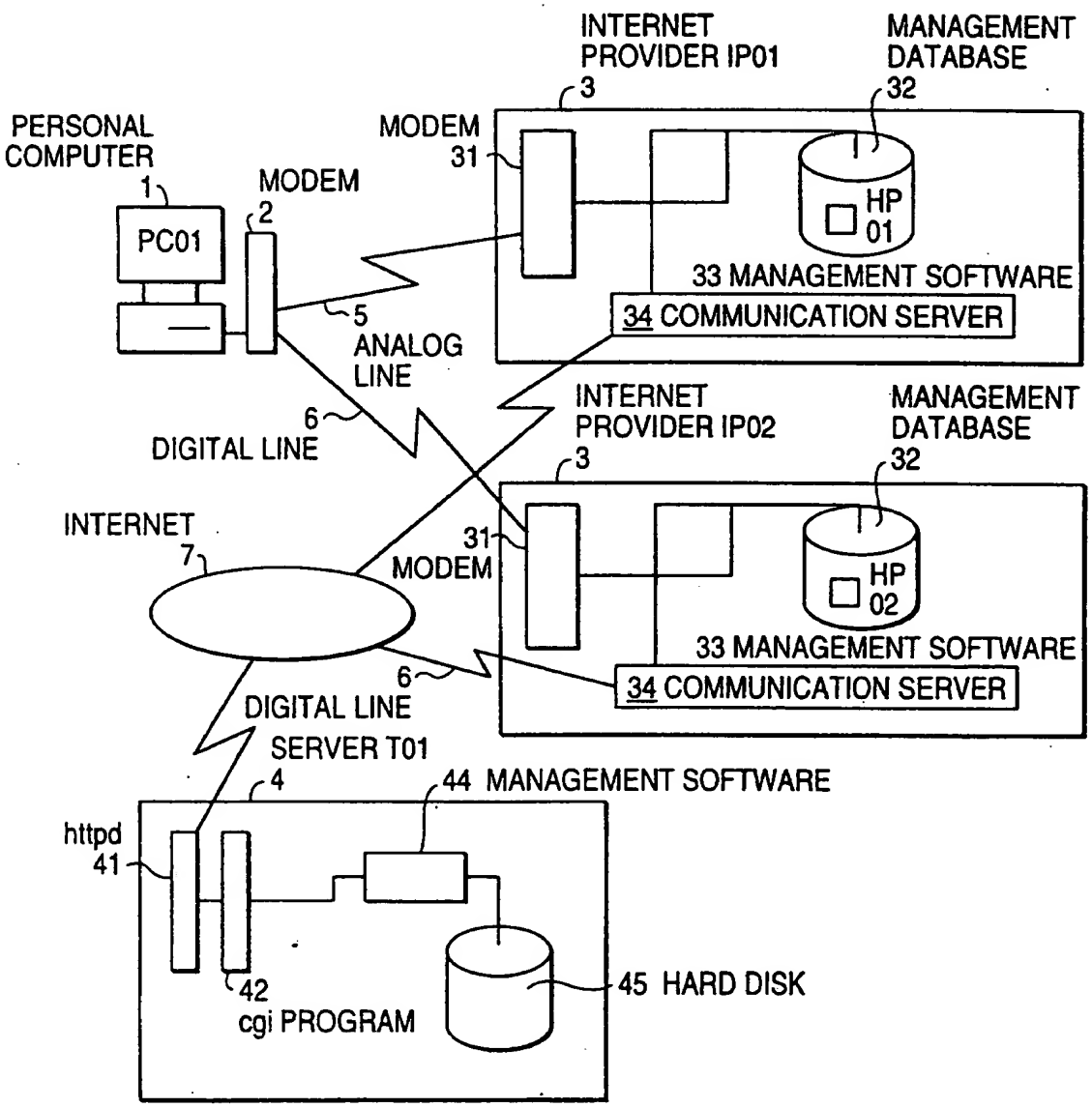

INTERNET
PROVIDER IP01
3
MANAGEMENT
DATABASE
32
PERSONAL
COMPUTER
1
PC01
MODEM
2
MODEM
31
HP
01
33 MANAGEMENT SOFTWARE
34 COMMUNICATION SERVER
5
ANALOG
LINE
6
DIGITAL LINE
INTERNET
PROVIDER IP02
3
MANAGEMENT
DATABASE
32
INTERNET
7
31
MODEM
HP
02
33 MANAGEMENT SOFTWARE
6
34 COMMUNICATION SERVER
DIGITAL LINE
SERVER T01
4
44 MANAGEMENT SOFTWARE
httpd
41
42
cgi PROGRAM
45 HARD DISK

FIG. 11

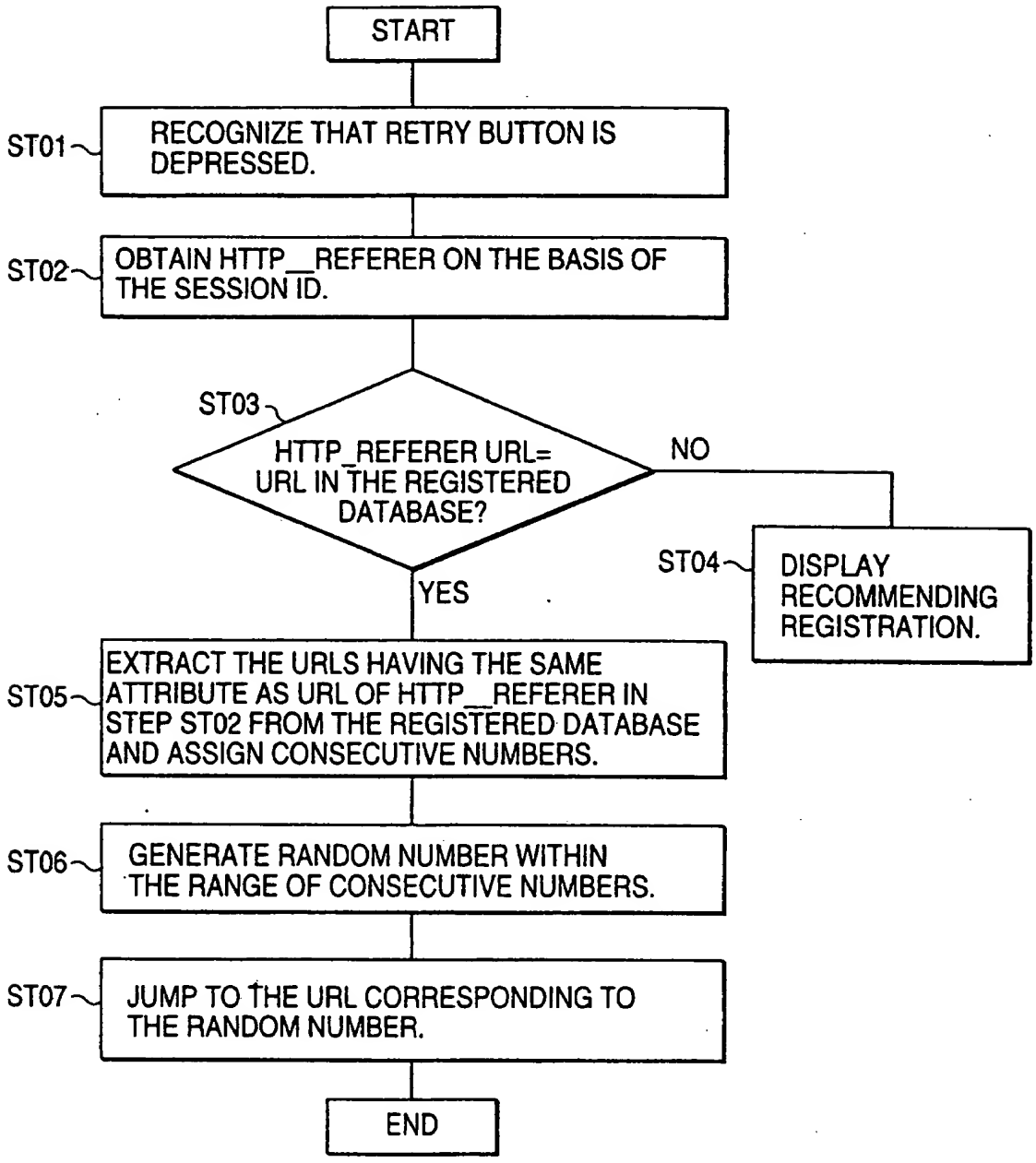
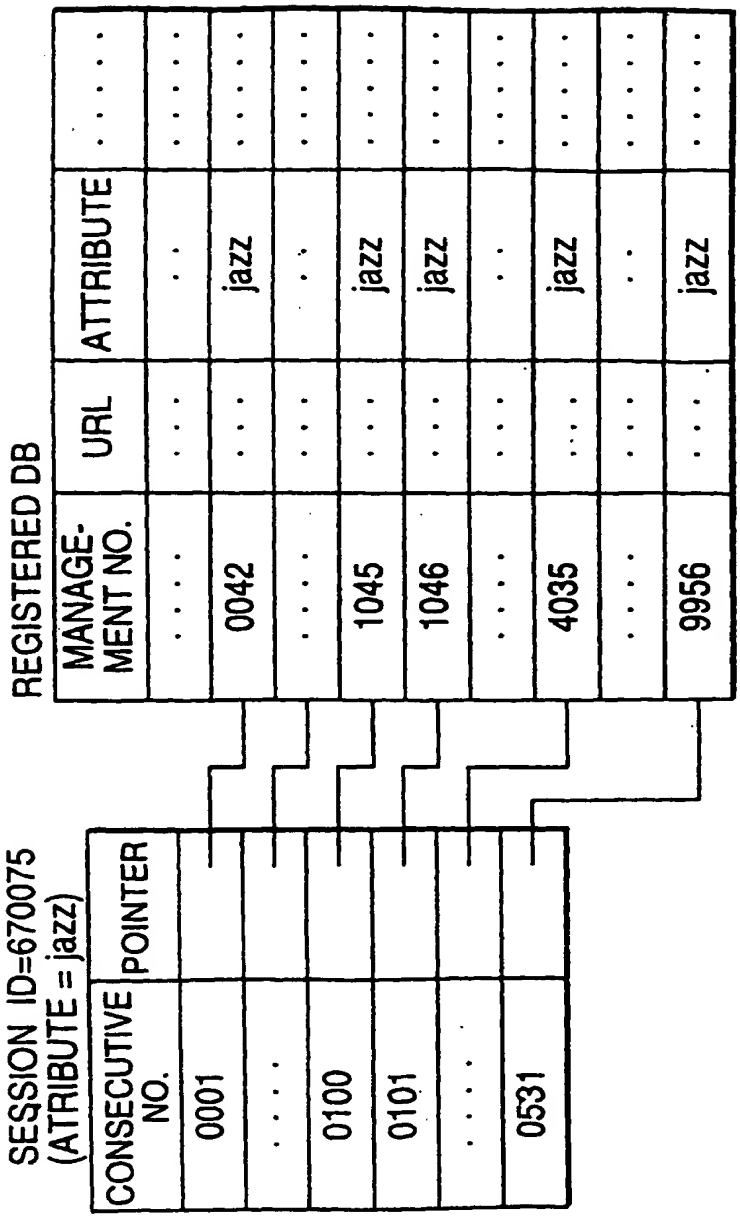

START
ST01
RECOGNIZE THAT RETRY BUTTON IS DEPRESSED.
ST02
OBTAIN HTTP__REFERER ON THE BASIS OF THE SESSION ID.
ST03
HTTP_REFERER URL= URL IN THE REGISTERED DATABASE?
NO
ST04
DISPLAY RECOMMENDING REGISTRATION.
YES
ST05
EXTRACT THE URLS HAVING THE SAME ATTRIBUTE AS URL OF HTTP__REFERER IN STEP ST02 FROM THE REGISTERED DATABASE AND ASSIGN CONSECUTIVE NUMBERS.
ST06
GENERATE RANDOM NUMBER WITHIN THE RANGE OF CONSECUTIVE NUMBERS.
ST07
JUMP TO THE URL CORRESPONDING TO THE RANDOM NUMBER.
END

FIG. 12


SESSION ID=670075
(ATRIBUTE = jazz)
CONSECUTIVE NO.
POINTER
0001
0100
0101
0531
REGISTERED DB
MANAGE-MENT NO.
URL
ATTRIBUTE
0042
1045
1046
4035
9956
jazz